

A Discovery of

Subterranean Treasure :

(viz.)

Of all manner of *Mines* and *Minerals*,
from the *Gold* to the *Coal* ; with plain Directions and Rules
for the finding of them in all Kingdoms and Countries.

AND ALSO

The *Art* of Melting, Refining, and Assaying of them is plainly Declared, so that every ordinary man, that is indifferently capacious, may with small charge presently try the value of such *Oars* as shall be found either by Rule or by Accident.

Whereunto is added

A Real Experiment whereby every ignorant man may presently try whether any piece of Gold that shall come to his hands be True or Counterfeit, without defacing or altering the form thereof, and more certainly than any Goldsmith or Refiner could formerly Discern.

ALSO A

Perfect way to try what colour any Berry, Leaf, Flower, Stalk, Root, Fruit, Sced, Bark, or Wood will give : With a perfect way to make Colours that they shall not stain nor fade like ordinary Colours.

Very necessary for every one to know, whether he be Traveller by Land or Sea, or in what Country, Dominion, or Plantation soever he shall Inhabit.

By Mr. Gabriel Plattes.

L O N D O N.

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over against the Royal Exchange, 1679.



To the Reader.

WHereas divers Reasons have joyned together to move me to take in hand this Taske: I will declare some few of those that may give the best satisfaction to the Reader, in this manner following. First, when I considered the great number of Treasure and riches which lyeth hidden in the belly of the Earth, and doth no good at all: and also the great benefit which might accrew to divers Kingdomes and Countries, by setting people on work; not only in the discovering of them, but also in the severall operations about the digging melting and refining of them: also when I considered that the most part of the Mines hitherto discovered have come by meer accident: I thought that I could not be better employed than to give Rules and directions for the same: for though it is not impossible, that if two men be sent to seek a thing that is lost, and one of them be luddwinked, and the other have the use and benefit of his eyes, yet the person luddwinked, may casually stumble upon it; nevertheless it is twenty to one that the other should have found it before him: so in this case, I dare hazard a Wager of twenty to one, that there will be more good Mines discovered within seven years after the divulging of these Rules and directions, than hath been in twenty seven years before: Also when I considered that many Minerals found out by accident, hath come to no good by reason of the distance of place from Refiners, and men of Judgment and experience: for that the finders thereof were loath to come so far, and spend so much money upon an uncertainty as the triall thereof would require: I thought I could not doe a better deed, than to shew the manner of such trialls in such plain manner that every man may try the same in his Ship, or Chimny Corner with little cost and labour.

And the truth of this I can witness by experience; for when I was a youth, and had no skill in these affairs; I happened upon a Mineral fair to see to, and could find no man neerer than an hundred miles which could inform me of the true value thereof: whereupon, rather then to be at such charges as the triall required, I suffered the same to be neglected.

And though that the rules and directions given in this Book be exquisite, and give strong signs of Mettals and Minerals; yet I would be loath that any man should be thereby animated to take in hand great Voyages, and consume

To the Reader.

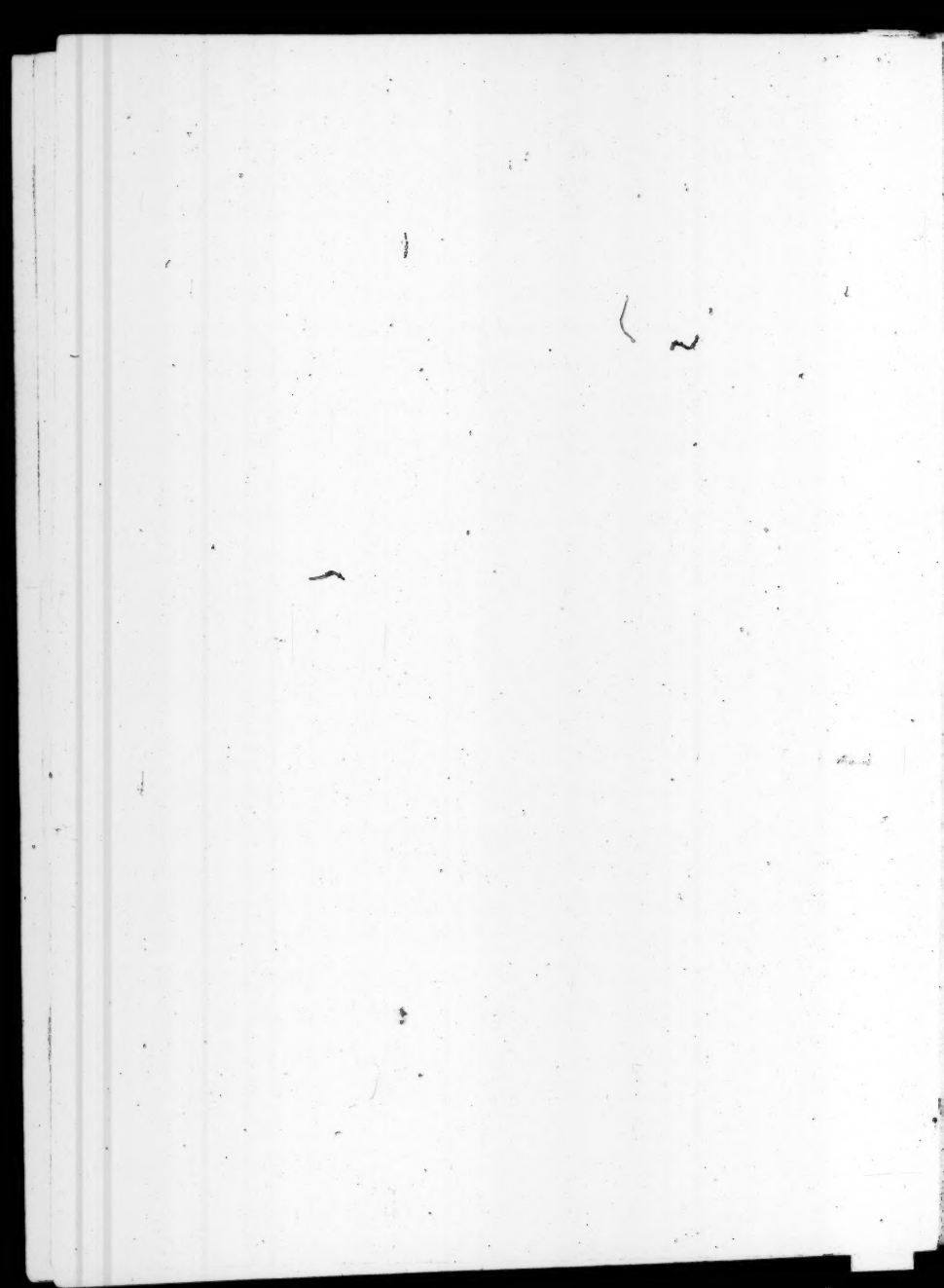
consume his Estate in the pursuit of this design; deeming them to be impossible ever to fail: but rather to make this a part of his business, when he shall come to such places as yield strong probabilities.

And so far I am from envying the former wayes in finding them by accident, that I have partly taken this pains; that those which shall hereafter be found by accident may not be neglected, as I conjecture, that many have been by my own formerly mentioned.

For I could wish that many men had the like fortune that one had, who in the climbing up of the great Mountain called Potersee, in the Kingdom of Perue in the West-Indies, took hold of a young Tree to stay himself withall; and thereby plucked it up by the roots, whereunto there did adhere good Silver Oar; which being tried and found rich, hath ever since been wrought upon: and innumerable treasure and riches have therehence been digged, to the walew of many hundred Millions of pounds Sterling.

And to the end I may no longer stay the Reader with Preambles, I will divide my Book into 12. Chapters, like as I did my Book Printed Anno. Dom. 2638. Entitled, A discovery of hidden Treasure: wishing all those that desire to be skilful in these affairs; to take a little pains to read that Book, which differeth from this no otherways, but as the Art of Surgery differeth from the Art of Physick: for as Surgeons deal chiefly with the external parts of mans body yet stand in need of the knowledge of all the parts; and as Physitians chiefly deal with the internal parts; yet cannot be without the knowledge of the external parts: So though that Book treats wholly upon the discovering of the Treasures hidden in the superficies and exurball parts of the Terrestrial Globe, yet the knowledge of many things therein contained are very conducible to make a skilfull Mineralist, giving you further to understand, that if any good will be done at all, it will be done with a small Charge: and with somewhat less than before this Book was published; if you observe the Contents thereof advisedly: So I take my leave and rest,

Your hearty Well-wisher
G. P.





A Discovery of all sorts of Mines and Minerals.

CHAPTER. I.

Wherein is shewed by a plain Demonstration the natural cause of the generation and production of Mountaines and Mettals: whereby the Seekers may obtain a good competent measure of knowledg to guide them where to seek for the other External signes.

SOLOMON saith, that Hope deferred breaks the heart; but the desire obtained, is a Tree of Life: If Hope onely deferred break the Heart; then Hope frustrated must needs break it a great deal more.

To the end therefore that our Hope may not be too frequently frustrated, I will first declare the places where there is no probability to find out Mettals, and afterwards I will shew where there is strong probability: and then in the next Chapter I will shew how to go about the work, to find out the strong signs which may rightly guide the Seekers to obtain their desire.

And first, there is no probability that any Mettals can be generated near unto the North and South Poles of the Globe, for those can by no means have any convenient Matrix for such a generation, being by all probabilities nothing but two Islands of Ice, for if they were any thing else, the course of Nature must needs alter, and change, and run presently out of order.

For as there is in the burning Zones a continuall exhalation of Water, and rarifying of the same into Air: so there must needs be in the North and South a continual condensation of Air into Water to supply the same again, else the motion cannot be perpetually circular.

Now whereas the North and South parts, by reason of their coldness, cannot suffer the said condensed Meteors to descend in form of Water, but in the form of Snow, Hail, or some substance of like nature, which there cannot melt in the superficies for want of heat, it is very probable that the new Accretion this way produced, doth presse down still with its weight the said Islands of Ice towards the Center, where the central heat melteth it off continually, by which means the spherical form of both Earth and Water are perpetually preserved.

And if any man be of a contrary opinion, I will not envy him; but as for my own part, I will sell my Interest and hope of Mettals in those places for a Farthing, although I had a device that the cold there could not prevent my seeking for them.

Also in Vallies and plain Champion Countries, there is no hope to prosper in this design, for the womb of such earth is not apt for such a generation, the Reasons whereof will presently follow.

Now that we have left us no other places to seek in but the rocky Mountains, I will spend the rest of this Chapter in demonstrating the natural cause of the generation of Rocks, Mountains, and Metals, and so proceed forward.

And first I will set down the Opinions of others with their Confutation, and lastly, the confirmation of mine own Opinion by irrefragable Demonstration.

Some have thought that the mighty Creator made the vast, deformed, and craggy Rocks and Mountains in the beginning, but this appeareth to be an Opinion, whereby great dishonour may result upon the Creator, who besides his Omnipotent power, doth continually make use of his admirable Wisdom, and exquisite Artifice in all his works, and made nothing deformed or unfit for the use for which it was created: Now the Earth being ordained to bear Fruits for the use of Men, and Rocks are not fit for that purpose, it plainly appeareth that they came not by accident.

Some others have thought that they came by accident, but yet that they were produced by accretion in length of time, even as Warts, Tumours; Wenns, and Excrecences are engendered in the superficies of mens bodies: and of this Opinion I my self was in my minority, till such time as by practical experience I found out a more probable opinion.

Now for a plain demonstration, let this Experiment following be tryed, and I make no question, but that it will satisfie every one that hath an inquisitive disposition.

Let there be had a great retort of Glasse, and let the same be half filled

led with Brimstone, Sea-coal, and as many bituminous and Sulphurous subteraneal substances as can be gotten : then fill the neck thereof half full with the most free earth from stones that can be found, but thrust it not in too hard, then let it be luted, and set in an open Furnace to distill with a temperate Fire, which may only kindle the said substances, and if you work exquisitely, you shall find the said Earth petrefied, and turned into a Stone : you shall also find cracks and chinkes in it, filled with the most tenacious, clammy, and viscous parts of the said vapours, which ascended from the subteraneall combustible substances.

Whereby it appeareth that the same thing is done by Nature, and that the Rocks and craggy Mountains are caused by the vapours of Bituminous and Sulphurous substances kindled in the bowells of the Earth, of which there be divers so well known, that they need not be here mentioned : Also it appeareth that the veines of Mettals are engendred in the crackes and crannies of the said Mountaines, out of the most clammy and glutenous part of the said vapours there adhering, where the cold gave them leave to be congealed and condensed.

Now concerning the Exaltation of the Mountains above the Vallies, it appeareth to come to passe by the water in former times, whose property is to wear away by its motion the most loose earth, and to leave the more firme ground, and rockie places highest, but whether this was done by *Noahs* Flood, or by the Sea in former Ages, is doubted. As for my opinion, I referre the Reader to my Book formerly mentioned, and if any man be in doubt of this, let him take the stone formerly made by Art, and place it so, that the motion of the water may work upon it, and you shall find it worn most in the loosest places, and least in the more firme compacted places ; thereby shewing the natural cause of Mountains and Valleys. Also if a River should be turned out of his course, and the bottom thereof accurately considered upon, how the water by his motion hath worn away the Earth most in the loosest Earth, and least in that which is more firme, it doth evidently demonstrate the natural cause of Hills and Vallies, and the unevennesse of the Earth caused by the motion of the Sea in former Ages.

CHAP. 2.

Wherein is shewed the signes of Mines and Minerals, with the manner how to work to find the same.

WHen we come to the Rocky and Craggy Mountains, the first thing we are to observe, is the barrenness of them; For the more barren they are, the greater probability there is that they contain rich Mines and Minerals.

The Next work is to find out the Springs of Water issuing out of the said Mountains, and those being found, a quantity of the said water is to be boiled in a new clean Pipkin, to the consistency of thin Oyl, but not so thick as a Sirrup; and when it is almost cold, then to put into an Urinall, and to set it in the coldest place that can be found for 3 daies, then to play the Physician, and to observe it exquilitely what residence it yieldeth: if nothing settle but a black earth or mudde, it is a sign of *Coales*: if some part thereof shoot into Ice, or a substance like Ice or Vitrioll, then to observe the colour thereof; if it be green or blewish, it is an evident sign of Copper; if whitish, then it may signifie any other Metall without exception.

The next work is to go to the bare Rocks, and there to find out the cliffs, cracks, and crannies; this done, to goe to the top: or till you find some Grass growing right upon the top of the said, Crannies, and then to observe diligently the kind of that Grass, and how it differeth from other Grass ordinarily growing in the same Mountain; not only in form, but also in colour, which colour sheweth the greatest difference in the heat of Summer, for the subterranean vapours issuing out of the Orifice of Mines; differ from those which issue out of the more solid places of the Mountains.

The next work is to see if there be any marcasites to be found in the superficies of the said Mountains: which though they are usually of divers colours, and seldom good for any thing, yet they are strong signes of Mineralls within, being themselves the spume and froth of the better Mettals, breathed forth, even as Drink breatheth up his Yest or Froth to the superficies.

And these if they be put in an ordinary fire, they will turn black, and yield a smell of *Brimstone*, *Arsmicke*, *Antimony*, or some other thing, commonly called or known by the name of a *middle Minerall*.

The next work is to trie the operation with the *Virgula divina*, as beneath is declared: and where it sheweth the strongest signs, as is likewise beneath taught: and also the place is most accompanied with the other
signs

signes formerly mentioned : thereby digging or boaring to try your fortunes.

The operation with the *Virgula divina* is thus to be performed : some observe a set day and hour with certain words and Ceremonies at the cutting up of the same, which I have found to be little to the purpose, thus I wrought about Mid-summer, in a calm morning : I cut up a rod of Hasell, all of the same Springs groweth, almost a yard long ; then I tyed it to my staff, in the middle, with a strong thred, so that it did hang even, like the Beam of a Ballance : thus I carryed it up and down, the Mountains where Lead growed, and before Noon it guided me to the Orifice of a Lead mine : which I tryed, having one with me with an hacket of Iron and a Spade ; and within two houres we found a vein of Lead Oare, within less than a foot of the Grass : the signs that it sheweth is to bow down the root end towards the earth as though it would grow there, near unto the Orifice of a Mine, when you see it doe so, you must carry it round about the place, to see that it turneth in the string still to the place, on which side soever you stand.

The reason of this Attraction I conceived to be of Kin to the Load-stone, drawing Iron to it by a secret vertue, inbred by nature, and not by any conjuration, as some have fondly imagined.

And the Reason of this my opinion was, because that in divers of my practicall Experiments I have observed an Attraction betwixt several things, like that of the Load-stone and Iron ; and if it were to good purpose, I suppose that I could shew more experience of that kind than any man in *England*.

Now in the new plantations, as *New-England, Virginia, Bermudas* &c. where it is like that few or none have ever tryed, that had any skill in these affairs, it is very probable that the Orifice of divers Mines may be discerned with the eye in the clifts of the Rocks in many places, as some have been in *England* at the first, before that men grew a little skillfull, and these to be lost and neglected, were a shame to the Planters ; for these Mines if they prove rich, would yield more gain in one year, than their Tobacco, and such trifles would yield in their whole lives.

CHAP. III.

Now that we are come to the melting and refining of Mettals, I will begin first with the Oar of Lead, because that is one of the most common Mettals found in these Northern Countries.

THE first work therefore to be done, is to have a little grate of Iron about a foot broad, like such as are used in a Still to make the fire upon: this is to be placed in your Chimney-corner with loose Bricks, one thickness underneath, and empty in the middle, to give air to the fire; then lay more Bricks above four course high, round about, and if they be laid without Morter, the fire will burn the better: then fill it with Char-coales kindled, in the midst whereof set your melting Pot, with one pound of Lead-ore, and four ounces of filings of Iron mingled together, and so blow to it strongly with a pair of good hand-bellows, till it be well melted down; then let the Pot be taken out with a pair of Tongs, and set to cool: when it is cold, break it, and knock off the brittle cinder lying upon the top of the Metal with an Hammer, till none be left but the malleable metall, which you may assay and refine in this manner following: Take a little Test made as beneath, and place it in the middle of your Chimney; lay ashes about it, about six inches broad, and as high, or rather higher than your Test; lay Bricks about the ashes to hold them up one Brick thickness, and two Bricks broad, then lay about half a peck of Char-coales upon the Test kindled, and when they are almost consumed, and the Test red-hot, put them by a little in the midst over the Test, and lay over a peece of good Oak-wood about five inches square, and eighteen inches long; lay it so upon two Tyle-sheards, that it may lye about an inch and an half above the Test, then lay on more ordinary Billets and some Char-coales amongst: make the fire about so strong as to roast a Pig, then blow to it a little, till the fire burn clear, then put upon the Test two ounces of your Lead, and blow to it gently, and in three quarters of an hour, all the Lead will be consumed, and the Silver will lye in the middle of the Test like a little Bead or Pearl, then put aside the fire, and let all be cold.

Then you may weigh the Silver in a pair of Gold-scales, and so cast it up how much there is in a Tun of Lead: I have thus tryed many Oares, and have found them to differ in goodness of all sorts, from Forty shillings worth of silver in a Tun, to thirty five pounds worth of Silver in a Tun, and there is no Lead but it holded some Silver, yet it is not worth the refining, unless it yield eight or ten pound upon a Tun at the least.

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The Test may thus be made: first, let a Smith make a Ring of Iron about four inches wide, and two inches deep, and a quarter of an inch thick, and as wide above as beneath, and without a bottom.

Then burn Mutton and Beef-bones in the Fire till they be white, then beat them small in Morter, and searce them fine like meal: then with a little beer or water temper a small part thereof like pappe, then put to so much more of the dry powder by little and little, as will make it so stiff that it will not be made into a ball, but remain clammish, betwixt powder and paste: then with a Pestle stamp it gently into your ring till it be top full, being set upon an even board, then stamp it a little lower in the middle than at the edges, and smooth it with a slight stone or some round glass, so set it in the Chimney Corner to dry a day or two, and it is ready for your work.

If you put a quarter of an ounce of Sandivert, and as much Salt-Petre mingled together with your powder of Lead, and filings of Iron at your first melting, it will melt somewhat sooner, and with less blowing, besides that the Sinder will part cleaner from the malleable mettall.

And if you want Char-coales, you may burn Wood in an Oven, and when it is red, and hath done smoaking, you may set up the Oven-stone, and damp it.

Or you may do the like in an open Chimney, and damp it in an earthen Pot, or cover it with Ashes, or damp it in an hole in the ground, by covering it with a cover, or with Ashes.

Any of these Coals will serve to make your assayes and tryals: as for directions for great works here is nothing intended in this little Book: but onely to be sure whether the work will quit the cost; which if it will then provision for great works will easily be brought to pass.

And if you want pots, you may be at choise whether you will buy the same at the Gold-smiths, or Potters in *London*, which sell *Flanders* melting pots, or make them your self by this direction following.

Take right *Flanders* Jugs, such as they usually put Bottle-Beer in, beat them to fine powder, and searce them fine as Meal: Take of this meal four pound, of the fine powder of *Tobacco* pipe Clay one pound, temper them together with the red faitish water that issueth out of an Horse Dung-hill, beat it strongly upon a broad board with a Rowling-pin, till it be stiff Paste, then fashion your pots upon a peece of wood, turned like a Top, onely let the sharp end of the Top be thicker and flatter than an ordinary Top; then set them to dry in your Chimney Corner a day or two; when you use them, set them in the fire at the first kindling: and so let the Fire steal upon them till they be red hot: then put in your Mettle and ingredients, and cover it with a Tile sheard, or cover of Iron, and so melt it down.

Wherein is shewed the Operations for tin

THis Mettall may be melted down like the Lead, only omitting the filings of Iron : but when it is melted it is not malleable, till it be compounded with certain proportions of other Mettalls, which I will not declare, because it is a secret of weight belonging to the Pewterers Trade.

And as for refining of it, I am sure it cannot be done by any artifice ; for I suppose that I have tryed more experiments about it, than any 10 men in *England*, because that I saw the Refiners could not do it : therefore I took the more pains and indultry to bring it to pass ; which If I could have affected, I doe verily believe it would have proved a rich Mettall : but the more I tryed the worse I sped, for at the last of all I melted Gold and Silver equall parts with the Tinne, thinking thereby to bring it down into the Lead, and to make it to drive faire, and refine kindly, but all was vain, for the Tinne poysoned and consumed some of my rich Mettalls.

Now whereas there is no hope of any Royall mettall ever to be gotten out of this Minerall : to supply the shortness of this Chapter, I will shew a way how every one that hath a mind to meddle with these affairs, may have good possibility to enrich themselves and their posterity ; and be out of danger to undo themselves, or to damnifie themselves in any manner of value that is considerable.

For my meaning is, in the taking in hand of this task, to doe good to all, and hurt to none : and that no man from henceforth shall need to be at a quarter of the charge, study, or labour, which I my self have undergone.

Therefore seeing that if the most ingenious and exquisite wayes be taken in the design that wit can attain unto : yet it is but an adventure ; for sometimes all the labour may be lost, though not often, if good heed be taken ; and sometimes Mines may be found, which will not quit the charges to be wrought upon.

Therefore as wise Merchants will not hazzard all in one Bottom, so let this never be any mans design totally : for now there is no such need but they may do all that can be done at such spare times, as any Gentleman, or man of quality, usually spendeth in Hawking, Hunting, Gameing, or other pleasures ; whereof he needs but set a part of that time for these purposes ; having the most part of his work done to his hands in this little Book.

If the Refiners shall grudge at me, for disclosing some of their secrets of their Trade, I will answer them in this manner: First, I my self have spent the time of divers Apprentisships in these affairs, and therefore claim a priviledge to disclose my experience for the publick benefits at my pleasure.

Secondly I affirm, that there can be no damage to any refiner, by the divulging of these secrets: but on the contrary, a great probability of much gain to that trade: for that, here is nothing, but the skill to make the assaies disclosed for the Searchers satisfaction, before he take in hand great workes; which if you find cause so to doe, I advise him to chuse the best Workman that he can get, and one that hath been long experienced in these Workes and in so doing he shall prosper the better in his design: And if that every year some of the increase of that Trade shall be entertained in these affairs, as there is good probability they may; the rest will have cause to give me thanks for my pains, rather than opprobrious speeches.

CHAP. V.

Wherein is shewed the Operation of Iron.

AS for the melting hereof, seeing that it is no work to be done in the Chimny corner, I will turn over the Reader to learn the practise thereof in every Country almost where he shall come.

As for the Refining thereof it may be done in this manner: Take filings of Iron two parts, Antimony one part, it will melt down like your Lead Oare: take the pure mettall, which will be much more brittle than the Lead was, and melt it with four times as much Lead as it weigheth, then refine it, as before is taught: if you know the goodness of your Lead before, you may know the augmentation out of the Iron, which will not quit the charges out of any Iron made in these Northern Countries, nor yet out of Spanish Iron: but what it may doe out of Iron made in the burning Zone I know not; but I conceive it may doe well, if any such Iron can be found and made in that Climate.

It is true, that good gold may be extracted out of any Iron, but not by any common way, but by a tedious, laborious, and costly way: and when all is done, there will be no gain, unless it be in conceit, which satisfieth no man, but those who are of my disposition, which thinketh experience to be the greatest gain that can be in the world.

CHAP. VI.

Wherein is shewed the Operations of Copper.

First, take your Oare, and break it into little peeces, about the bigness of Hazell Nuts : then lay a Leere of small Char-coales an inch thick in your Chimny Corner : then lay on your peeces of Oar, then lay on more Char coales an inch and anhalfe thick upon the Oare, then kindle and let the fire burn out of it selfe.

Then beat it into small powder, and mingle it with your Sandiver, and Salt-Petre, as you did your Lead, without any filings of Iron, and so melt it down as you did your lead Oare : only this difference must be used, by reason that it is harder of fusion than the Lead Oare : therefore you must lay the bricks somewhat wider than you did for the Lead, that it may hold more Coals : besides that, you must take the choysfest Coals that can be picked out, and no very small ones amongst them : also you must have two paire of hand-Bellows, and two mento blow very strongly, and so melt it down.

As for the refining it is needless to shew the manner ; for no Copper in these Northern Countries holdeth any royall Mettal, that is considerable ; neither English nor Danske Copper : yet in regard that in some Mines in *Hungarie*, there is generated Gold, Silver, and Copper, all in one mass of Oare : and also in regard that if any Mines of Copper shall be discovered in *Virginia*, or other Southern Countries, there is some good probability that it may contain royall Mettal : therefore I will shew the manner how to refine it, and also to part the Gold from the Silver, if it shall contain both together.

First, melt one ounce of Copper with four ounces of such Lead, as you know the goodnes of before : then refine it, and by the augmentation, you shall know the worth of the Royal mettall contained in the Copper.

If you would try whether the Copper contained any gold in it, put the assay, *viz.* the little Bead or Pearl of silver into good Aqua-fortis well purified before, and if all dissolve then the Copper held no gold ; but if it leave a black powder undissolved, that is gold : for Lead holdeth no silver that hath any gold in it at all : therefore it is evident that the Gold came out of the Copper.

But if it happen, as often as it doth in the refining of base Mettals, especially Tinne, Iron, and Copper, that the Little Bead, or Pearl remaining in the middle of the Test, is not bright and shining, like the eye
of

of a Bird, or Fish, but rough, black, and full of scurf; then if it be but a little in quantity, and that the Test be not cracked, nor full of clefts, then put to it some more of the same Lead, whereof you know the goodness, and drive it off again as you did at the first; and re-iterate this work till the assay be pure and clean like a little Pearl, or Bead, as it ought to be.

But if it happen that the Test is very foul, as often it cometh to pass in the Refining of strange Minerals, as *Marcasites*, and especially those which the Minerallists call by the name of *Devils Dirt*: Then there is no way but to let all cool; and then to dig it out, and with more Lead to melt it anew in a pot, and then to let it cool, and then to break the pot, and to beat off the Cynder with an hammer, till you come to the malleable Mettal, and you may be assured that no Royal Mettal will stay in the Cinder, but sink down into the Lead, through an attractive vertue betwixt them.

CHAP. VII.

Wherein is shewed the Operations of Silver.

AS for the melting thereof, when it is found in the Mine of Lead, the Operation is taught in the Chapter of the Lead: but if it be found by it self, or mixed with Gold without Lead, as many times it cometh to pass, then it is to be beaten to powder, and mixed with *Sandivere*, and *Salt-perre*, without any filings of Iron, and so melted down like the Lead Oar; only the fire must be somewhat stronger.

Then it is to be melted with four times as much Lead, whereof you know the goodness: and so to be refined, as before is declared.

But whereas sometimes this Oar is so strongly mixt with Sparre, and stony substances, that it cannot be separated therefrom, by any common manner of work used by the Refiners; then this course is to be taken with it: First, beat it into small powder; then wash away with water the greatest part of the terrestreity and filth: then dry the powder, and use it in this manner.

First, melt four ounces of Lead, and when it is melted put to it four ounces of quicksilver, made hot in another melting pot: but let the Lead be almost cold before you put to the Quick-silver: but yet it must be done whilst that the Lead is liquid.

This done, cast it into an Iron Morter, set warm before upon Embers,

and it will be like Pap; then presently with a Pestell, labour in one ounce of your powder, or two at the most, till it be incorporated; or so much thereof as will incorporate: for the strong and earthy substance will not incorporate with the Lead and Quick-silver by any Artifice whatsoever; but the silver, if any there be, will forsake the Earthy and stony substance, and joyn it self with the Lead and Quick silver by an attractive vertue. This done, put it altogether into a melting pot, with a little Sandiver and Salt-petre, and melt it down as you did the Lead Oar; onely this must be observed, that the fire must be more milde at the first a greardeal, till the Quick-silver be evaporated, and more strong at the last, that all may flow well together. Then take out the pot, and let it cool; then break it, and with a hammer beat off all the Cynder and Scurfe, till nothing be left but malleable mettall.

Then refine it according to the common manner before declared, and cast up with your Pen the augmentation that is more than the Lead yeilded of it self: and if there be no augmentation, then that Mineral stone contained neither gold nor silver: for this is the most exquisite way in the world to reduce gold or silver, which is hard to be reduced to a metallical body, through being strongly mixed with either corrosive substances, or any other filth which hindreth his reduction: therefore if this way fail, you may set your heart at rest for the seeking out of any other devices whatsoever, though the glistering sparks contained in the said Minerals do never so strongly invite you; and you may conclude with the old saying, that all is not gold that glisters.

But if it prosper, and yields any augmentation that is considerable: then if you desire to know whether there was any Gold mixed with the Silver, as oftentimes there is, where silver is found without lead, then put the little bead, or pearl of silver, which remained on the Test into *Aqua fortis*, and if all dissolve, then there is no gold in that Mineral; but if a black powder remain, then that is gold, and the quantity may be found by further trial.

CHAP. VIII.

Wherein is shewed the Operations of gold and real experiments whereby any man may presently try whether any peece of gold be true or counterfeit, without defacing or altering the form thereof.

AS for the melting of it: if it be found mixed with silver Oar, as oftentimes it cometh to pass, then it is to be melted, refined, and parted from

from the silver with *Aqua-fortis*, as is before declared, and if there be not five times as much silver, as there is gold in the composition, then you must put to so much, or else the *Aqua fortis* will not dissolve it.

But if it be found in grains or powder, as oftentimes it is, then you must put to it *Borax* in stead of *Sandiver* and *Salt-Petre*, and so melt it down as you did the other Oars before mentioned.

Now for so much as this mettall is the most rich of all the rest, and most thirsted after, I will enlarge my Discourse for the gaining of means to find it out; also I will shew the reason why this Royal Mettall is many times found pure of it self, with little or no mixture of other base mettall with it.

And first, whereas it is often found in the sand in Rivers, let no man think that it could be generated there, but that the swift motion of the water from the high Mountains, brought it thither, with earth and altogether, till such time as the motion of the water grew more slow; and so according to its property, being not able to carry forward still both the substances, did still carry the earth with it, and let the heavier body sink.

Therefore I would have those that have occasion to deal in the hot Countries where gold is usually generated, to make trial in all such Rivers which run from great Mountains with a swift course in such places, where the motion of the water beginneth to grow slow.

And for this purpose he may have a little Bucket of Iron that will not lye in the bottom, but on one side, which side must have a shoe like a shovel; so that being drawn a little forward, as it lyeth in the bottom it will fill it self with sand: which you may try by grinding it with Quick-silver whether it contain any gold: for if there be any gold in the sand, it will mix with the quicksilver willingly: then you may wash away all the sand, and strein the quick silver through a skin of Leather, and if any gold be gathered into it, there will remain a Ball in the Leather: then you may evaporate the quick silver from the Ball in a melting pot, and so melt down the gold with a little *Borax*.

Also sometimes gold is found in Rivers in powder and grains, far distant from any mountains of swift motion of water: this plainly demonstrateth that the earth thereabout containeth gold: a thing usually in hot Countries, and that the water in that place had a convenient motion to wear away the earth, and to leave the gold behind; and this is manifestly seen by experience where they wash whole mountains of earth with water, thereby to separate the gold from it.

Now whereas I have formerly affirmed that all mettals in general are generated of the clammy and glutenous part of the subterranean vapours,
arising

arising from *Bituminous* and *Sulphurous* substances, kindled in the bowels of the earth, it behooveth me to shew how gold, such a fixed substance can be found pure of it self, and not mixed with other base mettals.

And the reason of this can be no other, but because that all other mettals whatsoever will putrifie in the earth in length of time, and turn to earth again; but *gold* will never putrifie by reason of his *excellent composition*, being made of a *Balsamick Sulphure*, or fatnes, which is incombustible, and differeth from the *Sulphure* or fatnes contained in the other *mettals*, even as natural *Balsome* differeth from all other *Oyles*, & fat substances: so that though it be an *Oyl* in shew, yet it will sink in water, whereas all other *Oyles* will swim upon the top of the water.

N And this is the cause why *Gold* sinketh so eagerly in water, which may be proved by weighing a 20. *Shillings* peece of *Gold*, against his *Brass* weight, and then letting his *Scales* sink in a *Bason* of water 3. or 4. inches deep, the *Gold* will there over-weigh the *Brass* about 9. or 10. grains by reason that the *Brass* is more enclined to swimming through the combustible fatnes or sulphure in its composition; and as for the 20. *Shillings* Peece, so for any other peece of *Gold* whatsoever according to its several *Brass* weight you may in like manner try whether it be true or counterfeit.

Now whereas the substance of *Gold* is not subject to putrifie in the earth by any length of time, it is probable enough that other mettals might be generated with it at the first, and afterward putrified and consumed from it in length of time, leaving the *Gold* pure.

For I have drawn *Iron*, or a substance much like to filings, or atoms of *Iron* out of grain *Gold* that was brought from *Gynnie* with a Load-stone, which seemed to be *Iron* not fully putrified and turned into earth.

A And the Reason why the hotter the Country is, the richer the Minerals are, can be no other but the same, that roasted meats are sweeter than boyled Meats, or raw meats: the reason whereof is plain, for that the rawish and unfavory part is exhaled by the heat of the fire, leaving the sweetest part behind.

Even so in hot Countries, all that part of the subterranean vapours, which here is condensed into *Lead*, and other base mettals, can there have no leave to congeal, by reason of the heat: but is all or most part thereof exhaled out of the Mines, leaving behind the royall metals, whose property is to coagulate with heat: whereas the property of the base mettals is to evaporate with heat and to congeal.

The contrary opinion to this; namely that the substance of the best metals are convertible into Royal mettals by heat and digestion, hath filled the world with false Books and Receipts in *Alchemy*, and hath caused

sed many men to spend much money, labour, study and charges to no purpose.

For I know by good and long experience, and by many accurate trials that Quick-silver the most friendly *mineral* to the *Royall mettals*, can by no means or Artifice whatsoever be fixed or coagulated into either of the Royal Mettals: also I have found since that no Author of Credit or Reputation teacheth any such thing, but contrarily, condemneth all such operations to be false, vain, and frivolous.

For the matter of substance of the Royal mettals is quite contrary to that of the base mettals, even as the fixed salt of any vegetable is different from the *Volatill* or fugitive salt of the same. Yet I deny not but that by *Art* there may be drawn some small fixed part out of the base mettals, and may be converted into *Royall Mettal*, though with much labour, charges, and loss.

For as a Tree or other vegetable being burned, doth yield a fixed salt or Ashes: so the base mettals do contain in them some small quantity of matter of the same nature that the royall mettals are compounded of.

And for the further satisfaction to the Reader, I will shew in the next Chapter a true receit how to make reall and true Gold abiding all tryals, and having all properties active and passive which true natural Gold hath: but instead of gain, loss will be ready to follow the work.

CHAP. IX.

Wherein is shewed how true and perfect Gold may be made by Art with loss to the Workman.

Thus I Wrought.

I Took eight ounces of *Regulus* of Iron and Copper, made as beneath is declared, and 16. ounces of common *Sublimate*, bought at the Apothicaries, and made these ingredients into fine powder: first severally and then I ground them well together upon a Marble-stone, and so put them into a retort of Glass, and drew from them first an Oil, then a substance like a Butter, and lastly a yellow *Sublimate*, tinged with the tincture of Iron and Copper, which yellow *Sublimate* I rectified three or four times, till it was very pure: then I mixed it with equal parts of an *Amalgam* of silver, and quick-silver, made as beneath is taught, and put it into another retort of Glass, and forced away all but the silver, which remain-
ed

ed like yellow horn: this yellow silver I *amalgamed* again with new quick-silver, and set it in gentle heat about a week, then in very strong heat for 6. houres; so that the *quick-silver* rose up, and fell down again upon the silver; till such time as that it had carryed up all the silver; from the botom of the Glasse into branches like trees, then I melted down the silver; and fined it, and parted it with *Aqua-fortis*, and had divers grains of pure and good gold abiding all tryalls: but the quantity would not pay for half the charges and labour.

I made the *Regulus* thus: I took 4 ounces of Iron in stub nails, and made them red hot in a crucible: and then I put to it 8 ounces of *crude antimony*, and melted it down, and when it was well and thin melted, I let it cool in the pot, and so knockt off the *regulus* from the lop or cynder, which lay upon the top of it, then I did the like with 4 ounces of Copper in thin plats: and then I mixed equal parts of these two, and melted them 3 or 4 times, every time casting into the pot half an ounce of Saltpetre, as it was in melting to purifie it, till it was pure and bright almost like Silver, but yet brittle: so that I could beat it in a Morter to fine powder.

The yellow silver that was like yellow horn, did *Amalgam* with much difficulty and grinding, with salt and Vinegar, and some of it was lost do what I could: but the first silver was water silver, which I bought at the refiners, out of which they had taken all the gold before: this did *Amalgam* very easily, then I strained it to a Ball through a Leather skin, and so mixed it with the yellow sublimate that was tinged yellow with the tincture of Iron and Copper.

The proportion of the quick-silver to the silver was 5 or 6 parts to one.

If any one doubt the truth of *Alchimy*, he may be satisfied by this trial; but in stead of gain he shall pay for his learning, by going away with loss.

I do not deny but there are works of less loss and charge, yet none of them lucrous by reason of the change of times.

For if any one will uphold me as good a lease; or purchase of land, as I can prove by credible records, hath bin had in former times for an ounce of gold, I will undertake to make an ounce of gold by Art to pay for it, and yet have a good bargain.

But the difference of times hath confounded this Art, as may appear more plainly beneath.

First, in ancient times a mans work was not worth above a penny a day, which now is worth two shillings six pence a day, as may appear
by

by ancient records for bu'ldings, and the like: so that there is thirty to one loss in the Workmanship.

Secondly, then coales, vessels, and other things necessary for these affairs did cost little, in respect of the charge now.

Thirdly, when the gold was made, it would then have bought thirty or forty times as much, either Lands, leases, victuals, or workmanship as now.

So that I conclude, that then the owners of this Art might gain 30. or 40. for one, and yet now they shall loose extremly.

The cause that moved me to search so much into these affairs, was, because I saw by the books, that so divers men in divers ages, and in divers Countries did agree in one tale; whereby I conceived it impossible to be alye, now I conceive it might be true, but that the times have made an alteration.

CHAP. X.

Wherein is shewed the Operations for some of the inferiour Minerals.

AS for these base Minerals, viz. *Cinabar* naturall, *Antimony*, *Sulphur*, *Auripigment*, *Arsenick*, *Talcum*, *Muscovy glass*, *Emery*, and many other things of like nature, because they are of small value, and not worth the seeking for on set purpose, I will omit further to discourse of them: if any man shall find them, or any of them, by accident, let him use his own pleasure, skill, and industry in the proceeding of them.

Nevertheless, because *Cinabar* naturall may contain much quick silver, which is very useful for many things; and may prove as beneficial as a good Mine of mettall, especially if it shall be found in great plenty: I will therefore shew the *refining separation*, and *purifying* of the same in small proportion: so that if it shall be found a *profitable* work, then the finder thereof may proceed to a greater work. The first thing then to be done, is to consider of the weight thereof: if it be very ponderous, reddish in colour, and full of clear streaks, shining almost like the streaks of *Antimony*, then it is a good sign of a rich Mine.

The first trial to be made thereof is to weigh a peece thereof, and so put it into a gentle fire for an hour or two, in such sort that it may only be red hot; then to let it cool, and to weigh it again, and so by the lightness thereof, being compared with the former weight, you may judge somewhat of the richness thereof.

Then take a pound thereof, and beat it into fine powder, and mingle it well with as much unsleēt Lime, put it into a retort of Glasse, luted with Potters clay, and some horse-dung well beaten and tempered together; then set it in a little furnace in your Chimny corner, and force it with fire 12 hours: let it be kept red hot the last 4 hours; and let the nose of the glass enter into another glass, filled almost full of water, in such manner that the vapours of the *Cinabar* must needs enter into the water, for the better condensation thereof into quick-silver.

This done, separate your quick silver in the bottom of the water, and drie it, and weigh it; if you find the quantity considerable, then you may proceed in this manner.

First, make an hole in the earth with very good tempered clay that will hold water, and let it be narrow in the bottom, and wider and wider above to the top, to the breadth of 2. or 3. or 4 yards; then fill the pit with water, and lay over it barrs of iron of sufficient strength and thickness to bear the burden that must lye upon it; and let them lye so near together that the stones and wood cannot fall through: then lay thereupon a leer of dry wood, and a leer of your red stone not broken small, and so do again till it be a yard thick or more, then give fire to it on the wind side, and go away out of the danger of the fumes, till you see afar off that the fire is finished and burned quite out.

Then repair to your work, and let out the water through a pipe of Lead, which should be formerly laid almost at the bottom of the Pit, into another pit near to it, made so deep that it may receive the water, and in the bottom you shall find great store of quick-silver, if the Mine was good.

The water may be pumped up again to serve the next day for the same use; and you need but to take up but a few of the bars of Iron every day to go down into the pit, to take out your quick silver, and so lay them down again.

CHAP. XI.

Wherein is shewed the waies to find out Pit-coales: also the naturall cause of the generation of them, by a plain demonstration.

THough this Mineral be of small value, yet if a good Mine thereof shall be discovered in some particular places of this Land, the benefit thereof will far exceed the profit of any metall Mine usually found in these

these Northern Countries, by reason that wood is so greatly decayed of late years, that were it not for this help many People would be in danger to be starved.

The first thing therefore which I would have to be diligently observed is; that this Mineral is usually found in ground that is proan to bear wood and thorns, and not in the very fertile grounds, nor yet in the extreame barren grounds, but of an indifferent fertility, and in grounds that are usually slower in their groweth in the Spring time, than the fertile Champion countries by a week or a fortnight.

Also the said grounds are proan to bring forth large Cattel, and well horned: but not to feed the said Cattell without a long time, nor yet will they ever be very fat upon the same ground. Also the springs issuing out of the said grounds, are apt to colour the earth ruddy at their Orifice, like unto the rust of Iron.

Also the said spring water being boiled as before is taught, doth usually yield a black residue.

Also if you burie a new bowl of pure white wood in the said grounds, from *March* till *Midsummer*, with the Mouth downward, it will be coloured blackish, with the subterraneal vapours.

Also I had a receipt given me for this purpose by one, that for his great experience, and excellent skill in natural causes, seemed to be one of *Natures Darlings*: which because I have not tried, for want of opportunity, I will commend it as a very probable sign, and give such Cautions, that any man may be sure of it, before he trye his fortunes by digging or boring, or any chargeable way.

And this was his direction: *about the middle of May, when the subterraneall vapours are strong, which may be discerned by the Firm, which about that time will suddenly grow out of the earth in a night or two, almost an handfull in length, then take a pure white peece of Tiffany, and wet it in the dew of the grass, which is all of that springs growth, and not soyled with cattel, nor no other thing, then wring out the dew from it, and do so five or six times, and if there be coales the Tiffany will be a little blacked, and made fowl with the sooty vapours arising through the Coales and condensed amongst the dew.*

Now to be sure not to be deceived, do thus: first trye it where there are coales, and if ye find the signs abovesaid, yet trust not to the experiment, till you have tried where there is no Coales in some other place, wherein it behoveth you to try in divers places, till you find a place where the Tiffany is not soyled at all; then you may be sure that the experiment is true and unfailable.

I admonish him that shall trie with the *Tiffany* upon the dew, to let his hands

hands be *washed* before with Sope and hot water, and wiped with a pure white cloth, till they will not foul the cloth at all; else if they spend their *money* in *digging*, and find nothing, they may thank their foul fingers for that misfortune.

As for the naturall cause of the generation of Coales, this demonstration following doth make it manifest.

Take a peece of the black fat earth, which is usually digged up in the West Country, where there are such a multitude of Firr-trees covered therewith, and which the people use to cut in the form of Bricks, and to dry them, and so to burn them instead of coals; use this substance as you did the other earth in the beginning of the Book, to find out the naturall cause of Rocks, Stones, and Mettals, and let it receive the vapours of the cumbuttible substances, and you shall find this fat earth hardned into a plain coal; even as you found the other lean earth hardned into a stone.

Whereby it appeareth that nature doth the same thing in the generation of Coals under the ground, by the indurating of a fat earth with the subterranean vapours which are apt to work a various effect, according to the substance which they meet withall.

Now whereas some of inquisitive dispositions will desire to know the naturall cause of that fat earth, generated in such *subterranean* Caverns, let them be pleased to consider that such places in former times have been the superficies of the earth, and afterward have been covered by the sea with other earth, which may be demonstrated by two wayes: first, it is evident that the Mines of Coals do ly in some places, higher, and in other places lower, lively resembling the *superficies* of the earth, which is never directly equal, but every where various.

Secondly, every one may see in the *West Country*, where such a multitude of Firr trees do ly covered so deep in the earth, that the superficies of the earth was deeper then it is now in former ages, when those trees were brought thither by the Sea: for it is evident that they never grew there: first, for that there groweth no Firre trees in that Countrey: secondly, for that they do ly cross, and in such uncooth manner, that no humane strength could ever imitate nor paralell by any device whatsoever.

Also they may see the power of the Sea to alter the superficies of the earth, by the multitude of earth there laid so many yards deep upon the top of the trees.

Also they may see that the Sea doth make the difference of the nature of earths by its various motion, as well as the unevenness thereof by hills and vallies: for there they may see that some earth will burn, and some will not burn, being both sorts brought thither by the Sea, as appeareth evidently by the former discourses.

Also

Also the Sea never resting, but perpetually winning land in one place, and losing in another, doth shew what may be done in length of time, by a continual operation, not subject unto ceasing or intermission.

CHAP. XII.

Wherein is shewed a perfect way to try what colour any Berry, Leaf, Flower, Stalk, Root, Fruit, Seed, Bark, or Wood will give: also a perfect way to make colours fixed, which will not abide the ordinary way.

HERE I must confess a manifest digression from my subject: yet in regard of the great benefit which this experiment may bring to the Countrey out of the new Plantations, and other places, where it is very probable that many of these things be hidden and unknown, I will crave pardon, for that my intent was chiefly to prevent the loss of those things which may do much good, were it not through ignorance or negligence.

First then take half a pint of water, and half a pint of float, made as beneath, 2, penny weight of *Allom*, 12. grains of *Tartar* finely beaten, and put all into a *Tinn* vessel, which is better than *Earth*, *Lead*, or *Copper*; set it on a *Trivet* to dissolve the *Allom* upon a gentle fire: as soon as it beginneth to boil, take a peece of white wollen cloth, well scoured with *Sope*, fullers earth, or *Lee*, or altogether, to take out the greale of it, being well washed out with fair water, and then dried in the air or Sun, not by the fire: the cloth must weigh but half an ounce; then tie a thred to the end of the cloth, and when the *liquor* beginneth to boil, then put in the cloth, and let it boil an hour; then take out the cloth, let it cool, wash it in two or three waters; then take any berry, leaf, flower, stalk, root, fruit, seed, bark, or wood, and bruise them well; put them in fair water, and boyl them with a gentile fire to extract the tincture; then put in the cloth formerly prepared, which will shew what Colour they will give.

To make the Float.

Boyl an Hogs-head of water, then cast in a Bushel of wheat Brann, then draw the fire, then let it stand three or four dayes, till it grow fowrish.

But for small tryalls a little will serve, observing proportion between the water and the Brann.

A proportion must be observed in the allowing of all stufes before they receive their colours: First, the proportion of *Allom* to the water; which is one of *Allom* to 16. of water, and float: Secondly, the proportion of the

Tartar

Tartor to the *Allom*; which is one of *Tartor* to 4. of *Allom*: Thirdly, the proportion of *Allom* to the Cloath, which is one of *Allom* to five of the Cloath.

Note that all silks must be allomed cold, or else they will loose their luster.

The way to find what tincture is hidden in any vegetable, or in any part thereof:

Take the vegetable, being cut green, and stamp and grind the same, as if it were to make juice thereof, then press out the superfluous moisture; the remainder make up in Balls, and lay them up together, that they may gather a little heat, but let them not heat to much, for then they will turn to dung: these being sufficiently fermented, must be dried, and afterwards used as Oad is used.

Another way as Indico is made.

Make a pit with Timber and boards, about a foot deep, and as wide, and as long as you please, being well clayed in the bottom and sides; then fill this pit with any vegetable cut green; then put as much water to it as will cover the herbs: let it stand exposed to the Sun two or three daies: then with a plugg at the bottom draw out all the water, and cast it away: then fill the pit again with fresh water, and when it hath stood the like time, draw it away as the former: this do so often, till you find that the herb will be easily brought into a mussilage; then it must be trod, and beaten with woden instruments, like rammers, till it will come all to a mussilage: then it must be taken and wrung through hair Sives, like *Cassia Fistula* extracted, to keep the stalks and great Fibres for passing through: afterwards the Mussilage or papp that passeth through, must be dried in the Sun, and so formed into Cakes like to Indico.

Another way.

Take the vegetable cut green, and stamp and grind it: then take an Hogs-head and fill it with half water, and half bruised herbs, set it out of the Sun, with the bung hole open two or three inches, till it firmeth and work like Wine or Beer: after it hath done working the Herbs will sink, which at the first did swim, and the liquor will grow a little sowerish; then let it be set abroad in the Sun, and brought into Vinegar, as wine and beer is brought into vinegar, and then that colour can never be stained with other Vinegar or Vrine, because it is sufficiently impregnated, and his appetite satisfied with his own proper Vinegar: when his substance is thus turned into Vinegar, the clear Vinegar must be drawn from it, the remainder must be used as the former Indico, and some water to that, to be sure to fetch out all his tartarous mussilage, must be put to the Vinegar, and dried away in the Sun, and so they come like Indico: *In tincturam tartarizatum.*

tartarizatum fixam de occulto in manifestum.

And whereas Barks, Woods, and Roots are of a dry composition, and will not firmment of themselves with water like green Herbs, or vegetables: therefore they must be well ground, or thin shaven and there must be added in stead of Water, Juice of Grapes, Pears, Apples, or Wort made of Malt, or other grain, into which the Wood Bark, or Roots must be put: let them ferment together, and afterwards be turned into Vinegar; then the clear Vinegar must be extracted: the residue of the tincture must be extracted with fresh water, and both of them must be breathed away in the Sun, as before, and so brought in his perfect tincture.

By this which hath been declared in this Chapter, it may appear to every one having an inquisive disposition, what is the true naturall cause why some colours are fixed, and will not stain with vinegar, urine, nor yet fade with the Air; which hath in it a certain acetosity, or sharp airy salt of the nature of Vinegar, which those tinctures draw to them, which have not their Appetites fully satisfied before with such spirituall or airy salts; and this is further manifest for that all such tinctures which are most firm and fixed, and are not subject to staining or fading, being tasted upon the tongue, may be felt somewhat sharptish or sowrish.

And the cause, of this appetitive and attractive vertue in colours is no other but the very same which is betwixt the Load-stone and Iron: for take the Load-stone, and burn it till all his blew vapour be exhaled, and then he will draw no more Iron: thereby shewing plainly, that it was that airy salt, tincted with the venerall, or vegetable greenness, which the Iron thirsted after, to satisfie his thirsty and dry nature and constitution, which he got by his calcination and fusion.

And the like attraction may be discerned by the intellectuall eyes, in any thing that is strongly burnt, so that all his Spirits are exhaled: as Lime will draw the airy substance to him, and thereby quench himself: Also Tartar burned, and laid in the Air, will draw the sharper part of the air to it, and thereby dissolve it self: and in summ all corporeall substances, the more they have lost their spirituall parts by naturall, or artificiall operation, the stronger is their Attractive vertue.

Now in stead of filling the Readers head with Proclamations, I will conclude my Book with giving ease to his memory, by prescribing what necessities he is to provide for the accomplishing of his severall designs, in his Voyages or Plantations, whither his occasion shall draw him.

*And first for him that will only try his fortunes in the searching
for Mineralls.*

He will need nothing but two or three Pipkins, two or three Vrinalls, an Iron Pick-Ax, well steeled, a Spade and a Crow of Iron, if he will be at the

the charge thereof: but there is no great necessity: also if he be not acquainted with the several Oars of Mettalls, it will be convenient that he take with him a little peece of every sort of Oares: or so many severall kinds as he can get.

And for him that would proceed further, to try the value of them himself, he must provide these things following.

A Grate of Iron of a foot broad, some Bricks, two pair of good hand-bellows, a pair of Tongs some Lead, Salt Peter, Sandiver, Borax Flinders melting Pots, a ring of Iron for the Test, an Hatchet, or hand-saw to cut wood: some good Aqua-fortis, Weights and Scales: and if any man be not active handed, he may have a Man for a trifle: to shew him the Manuell practice in a day before he go his Voyage.

And for him that will search for Dying stufes, he may see in the last Chapter what things he shall stand in need of: Also the other Chapters may be perused whereby every one may be the better accommodated for their severall enterprises.

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